

Summer 1986 Air Monitoring Program Preliminary Results

The attached data tables are the results of the analyses performed on air samples collected during EPA's summer air monitoring program in August, 1986 in the town of Coalinga, California.

Please, bear in mind that these data are still preliminary. The samples are currently being reanalyzed to ensure accuracy, and additional air sampling is being performed to further verify the results. The following factors should also be considered when reviewing the data:

- o Air samples were taken at both the Atlas Asbestos Mine and the Coalinga Asbestos Mine from August 22 to August 28, 1986, using high volume asbestos samplers. Samples were collected during the day and night and averaged 9 hours of continuous monitoring per sample.
- o The town of Coalinga, approximately 15 miles from the sites, was initially intended to be a background sample only. The unusually high results in the town itself were unexpected.
- o The air concentrations of greatest concern are on page 1 of Table 1, taken at the Coalinga Fire Station. At the Fire Station, asbestos fibers per ACM (Actual Cubic Meter) range from 6,165 fibers/m³ on 8/26 to a high of 1,647,580 fibers/m³ on 8/22 (see below).
- o The samples which yielded the highest concentration values were all analyzed by an indirect preparation technique (as noted in the column labeled "comments") due to unexpected overloading of the filters. The laboratory diluted all of the samples analyzed in this manner by a factor of 9.974. Therefore, the fiber counts reported to our analysts were all multiplied by that factor to arrive at the concentrations. Using the indirect preparation method probably resulted in higher values than would have been observed had the filters not been so heavily loaded.
- o Meteorological data is not available for the summer air samples in the town although observations by the field crew indicate that the wind had died down on 8/28. The reduced wind possibly created an inversion effect and could be an explanation for the unusually high asbestos concentrations on that day.
- o The samples were analyzed by TEM per the NIOSH method.

- o The fiber concentrations have been expressed in terms of both actual volumes and standard volumes. For comparing between sites, the standard concentrations are probably more useful. (A volume of air travelling from the Atlas site, for example, to downtown Coalinga would compress approximately 15 percent; correction to standard volumes removes this effect.) The concentrations expressed using actual volumes are more appropriate for comparison to standards.
- o The data enclosed are for fibers of all sizes. Long fibers probably comprise less than 5 percent of the total.

ATLAS AND CONKLIN SIGHT AIR MONITORING: PRELIMINARY RESULTS OF ANALYSIS

TABLE 1

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SAMPLE ID	DATE (9:00-10:00)	LOCATION	CLOUDS		ASPIRED		ELAPSED		INDICATED		CONE.		SAMPLE	ASBESTOS		ASBESTOS		ASBESTOS		ASBESTOS		
			PRESS.	SITE PRESS.	ELAP.	SITE TEMP.	TIME	AVE. FLOW	FLOW	FLOW	STRUCTURES	STRUCTURES	STRUCTURES	PER ACM	FIBERS	PER ACM	FIBERS	PER ACM	FIBERS	PER ACM	FIBERS	
21567-30	8/22/96	DAY	firestation	29.91	29.24	671	305	516	14.95	15.30	7.89	307,000	285,000	36,100	114,000	14,440	15,124					
21567-34	8/23/96	DAY	firestation	29.92	29.25	671	305	516	14.00	14.13	7.39	190,000	181,000	24,487	67,100	6,372	6,671					
21567-40	8/24/96	DAY	firestation	29.01	28.14	671	305	504	14.50	14.86	7.49	105,000	183,000	24,427	75,500	9,677	10,170	flow leak; sample voided				
21567-42	8/25/96	DAY	firestation	29.75	29.00	671	305	525	8.65	8.36	6.65	394,000	259,000	64,017	199,000	42,750	44,907					
21567-76	8/26/96	DAY	firestation	29.83	29.16	671	305	520	9.25	9.47	5.00	500,000	491,000	94,184	162,000	31,395	33,563					
21567-90	8/27/96	DAY	firestation	29.88	29.21	671	305	594	8.50	8.69	5.18	8,250,000	7,850,000	1,510,071	6,720,000	1,301,204	1,361,390	indirect preparation				
21567-104	8/28/96	DAY	firestation	29.94	29.27	671	305	531	11.64	11.92	6.27	1,446,143	1,375,714	297,540	1,060,866	234,475	265,271					
MEAN				29.86	29.19			531	11.64	11.92	6.27	1,446,143	1,375,714	2,641,849	546,345	2,511,137	477,220	499,221				
STD. DEV.				0.06	0.06			23	2.06	2.93	1.34	2,703,601	2,641,849									
21567-27	8/22/96	NIGHT	firestation	29.91	29.24	671	295	696	15.50	15.60	7.77	15,300,000	15,000,000	1,930,750	12,000,000	1,647,580	1,644,361	indirect preparation				
21567-41	8/23/96	NIGHT	firestation	29.92	29.25	671	295	524	15.50	15.60	6.24	364,000	353,000	42,463	121,000	14,652	14,078					
21567-55	8/26/96	NIGHT	firestation	29.01	29.14	671	295	534	15.50	15.63	6.34	214,000	214,000	25,645	52,800	6,327	6,431					
21567-69	8/25/96	NIGHT	firestation	29.75	29.06	671	295	545	12.75	12.87	7.01	288,000	275,000	39,213	77,400	11,937	11,242					
21567-83	8/26/96	NIGHT	firestation	29.83	29.16	671	295	546	9.54	9.66	5.27	180,000	180,000	35,642	32,500	6,185	6,262					
21567-97	8/28/96	NIGHT	firestation	29.94	29.27	671	295	520	9.38	9.44	4.96	6,250,000	5,950,000	1,196,272	4,010,000	965,447	976,945	indirect preparation				
MEAN				29.86	29.19			530	11.04	11.13	6.94	3,767,333	3,665,000	545,069	2,982,213	441,875	447,443					
STD. DEV.				0.07	0.07			16	2.70	2.71	1.35	5,601,968	5,480,414	750,733	4,719,401	642,327	650,524					
TIME NOT RECORDED																						
21567-22	8/22/96	DAY	A-1	29.91	25.50	4330	305	510	11.50	12.58	6.52	211,000	200,000	30,485	73,300	11,246	13,463					
21567-28	8/22/96	DAY	A-1	29.92	25.59	4330	305	639	14.50	15.07	10.14	217,000	213,000	21,011	67,360	8,611	10,309					
21567-35	8/23/96	DAY	A-1	29.91	25.50	4330	305	564	11.50	12.74	11.65	331,000	322,000	196,000								
21567-36	8/23/96	DAY	A-1	29.91	25.59	4330	305	564	11.90	13.02	7.34	260,000	255,000	34,732	164,000	14,165	16,951					
21567-50	8/24/96	DAY	A-1	29.01	25.48	4330	305	471	11.60	13.02	6.13	270,000	262,000	42,711	123,000	20,051	24,099					
21567-51	8/24/96	DAY	A-1	25.81	25.81	4330	305	529	12.00	12.16	6.96	347,000	343,000	69,247	113,000	16,237	19,515					
21567-63	8/25/96	DAY	A-1	25.75	25.42	4330	305	510	11.65	12.79	6.52	226,000	226,000	34,654	110,000	16,864	20,320					
21567-64	8/25/96	DAY	A-1	25.75	25.42	4330	305	525	11.75	12.90	7.16	231,000	231,000	40,936	119,000	15,346	18,514					
21567-77	8/26/96	DAY	A-1	25.83	25.50	4330	305	492	11.50	12.60	6.20	234,000	231,000	37,256	93,000	14,999	19,012					
21567-70	8/26/96	DAY	A-1	25.83	25.50	4330	305	490	11.90	12.04	6.26	248,000	247,000	119,494	344,000	54,956	65,937					
21567-91	8/27/96	DAY	A-1	25.88	25.55	4330	305	516	11.50	12.59	6.30	3,150,000	3,060,000	471,028	2,070,000	318,637	391,900	indirect preparation				
21567-92	8/27/96	DAY	A-1	25.88	25.55	4330	305	516	11.75	12.66	6.44	3,250,000	3,180,000	479,025	2,790,000	415,869	490,346	indirect preparation				
21567-95	8/28/96	DAY	A-1	25.94	25.61	4330	305	549	11.90	13.01	7.93	5,790,000	5,560,000	791,255	4,380,000	623,327	745,334	indirect preparation				
21567-96	8/28/96	DAY	A-1	25.94	25.61	4330	305	534	11.45	12.52	6.69	7,380,000	7,380,000	1,103,004	6,460,000	648,000	774,837	indirect preparation				
MEAN				25.86	25.53			520	11.92	13.05	6.93	1,421,357	1,390,929	250,457	1,216,114	187,369	200,566					
STD. DEV.				0.06	0.06			41	0.74	0.80	0.99	2,275,963	2,245,760	340,136	1,933,025	235,762	262,030					

TABLE 1 (Continued)

ATLAS AND CALIBRA SAMPLES: PRELIMINARY RESULTS OF ANALYSIS

SAMPLE ID	DATE	TIME (19:00-21:00)	LOCATION	COPPER		ASSESS	ELAPSED TIME	INDICATED AVE.	FLOW RATE	VOLUME	TOTAL STRUCTURES	ASBESTOS STRUCTURES PER ACT. (ACT. LPM)	ASBESTOS FIBERS PER ACT	ASBESTOS FIBERS PER SCM	COMMENTS	
				PRESSURE	SITE PRESS.											
21561-92	8/20/06	NIGHT	A-1 COLD.	29.94	25.61	4330	295	672	12.00	12.91	6.67	4,660,000	4,640,000	535,043	41,000,000	4,727,749 5,467,795 DIRECT PREPARATION
MEANS				29.855	25.525			539	12.23	13.17	7.09	2,021,417	1,958,500	262,380	10,873,533	1,273,575 1,475,496
STD. DEV.				0.06	0.06			98	0.21	1.27	3,388,962	3,262,962	384,249	24,964,204	2,031,273	3,290,787
21561-25	8/22/06	DAY	A-2	29.91	25.50	4010	305	510	11.75	12.79	6.52	496,000	496,000	74,586	253,000	36,826 45,904
21561-37	8/23/06	DAY	A-2	29.92	25.51	4010	305	540	12.00	13.05	7.04	303,000	283,000	40,172	134,000	19,021 22,401
21561-52	8/24/06	DAY	A-2	29.01	25.50	4010	305	595	11.75	12.80	7.49	165,000	165,000	2,230	64,200	8,573 10,175
21561-64	8/25/06	DAY	A-2	29.75	25.74	4010	305	564	12.00	13.69	7.38	169,000	165,400	2,222	57,200	7,746 9,218
21561-79	8/26/06	DAY	A-2	29.83	25.52	4010	305	522	11.65	12.69	6.62	167,000	164,000	27,713	65,000	12,034 15,222
21561-93	8/27/06	DAY	A-2	29.88	25.97	4010	305	486	11.75	12.79	6.21	212,000	201,000	31,352	92,400	14,872 17,644
21561-107	8/28/06	DAY	A-2	29.94	25.93	4010	305	564	11.50	12.58	7.05	463,000	443,000	64,325	167,000	26,530 31,332
MEANS				29.86	25.85			539	11.77	12.81	6.59	290,714	293,566	35,410	126,686	10,344 21,706
STD. DEV.				0.06	0.06			32	0.17	0.19	0.43	123,131	179,649	26,522	66,631	10,262 12,111
21561-31	8/22/06	NIGHT	A-2	29.91	25.50	4010	295	569	11.75	12.57	6.90	116,000	109,000	15,301	30,000	4,465 5,166
21561-44	8/23/06	NIGHT	A-2	29.92	25.51	4010	295	516	12.25	13.10	2.13	120,000	120,000	42,417	41,600	14,705 16,809
21561-56	8/24/06	NIGHT	A-2	29.81	25.89	4010	295	540	12.30	13.26	7.16	134,000	132,000	18,420	54,000	7,451 8,763
21561-72	8/25/06	NIGHT	A-2	29.75	25.74	4010	295	546	12.00	12.87	7.93	370,000	371,000	52,706	150,000	22,400 25,664
21561-87	8/26/06	NIGHT	A-2	29.83	25.82	4010	295	552	12.15	13.01	7.18	267,000	262,000	36,474	87,400	12,167 13,597
21561-101	8/28/06	NIGHT	A-2	29.94	25.93	4010	295	729	12.00	12.83	9.23	99,000,000	98,460,000	10,656,116	74,700,000	0,089,532 9,240,364 DIRECT PREPARATION
MEANS				29.86	25.85			521	12.09	12.94	6.72	16,669,167	16,585,467	1,003,670	12,512,100	1,359,507 1,551,815
STD. DEV.				0.07	0.07			150	0.20	0.22	1.91	36,819,590	36,597,546	3,950,955	27,811,306	3,019,222 3,430,432
21561-33	8/22/06	DAY	C-1	29.91	26.15	3060	305	624	12.00	12.82	8.00	196,000	171,700	21,394	95,400	11,955 12,635
21561-36	8/23/06	DAY	C-1	29.92	26.04	3060	305	516	12.00	12.81	6.61	144,000	138,000	19,271	65,100	9,091 19,407
21561-53	8/24/06	DAY	C-1	29.91	26.75	3060	305	582	11.50	12.30	7.16	242,000	240,000	69,090	112,000	32,242 36,793
21561-67	8/25/06	DAY	C-1	29.75	26.69	3060	305	202	11.50	12.32	3.47	104,000	105,000	25,916	37,500	5,253 6,009
21561-80	8/26/06	DAY	C-1	29.83	26.77	3060	305	569	11.73	12.55	7.14	100,000	105,000	36,474	87,400	12,167 13,593
21561-95	8/27/06	DAY	C-1	29.90	26.82	3060	305	544	11.50	12.27	6.64	170,000	170,000	25,459	55,700	8,342 9,503
21561-104	8/28/06	DAY	C-1	29.94	26.80	3060	305	523	11.75	12.56	6.54	168,000	160,000	32,224	73,100	12,376 15,309
MEANS				29.86	26.80			103	0.23	0.24	1.34	32,373	33,367	18,401	27,032	9,671 11,111
STD. DEV.				0.06	0.06											
21561-32	8/22/06	NIGHT	C-1	29.91	26.05	3060	295	492	12.00	12.60	6.20	132,000	130,000	20,965	50,500	8,144 8,904
21561-45	8/23/06	NIGHT	C-1	29.92	26.06	3060	295	516	12.50	13.13	6.77	105,000	97,300	14,346	17,500	2,584 2,849
21561-50	8/24/06	NIGHT	C-1	29.91	26.75	3060	295	546	12.15	12.70	6.94	75,200	75,200	10,773	21,800	3,123 3,459
21561-71	8/25/06	NIGHT	C-1	29.75	26.89	3060	295	552	12.38	13.04	7.20	305,000	293,000	40,700	90,500	13,656 15,199
21561-89	8/26/06	NIGHT	C-1	29.83	26.77	3060	295	539	12.25	12.89	6.95	179,000	177,000	16,270	41,700	6,004 6,443
21561-102	8/28/06	NIGHT	C-1	29.94	26.80	3060	295	516	12.00	12.60	6.50	216,000	216,000	31,232	61,900	9,523 10,894
MEANS				29.86	26.80			527	12.21	12.84	6.77	168,700	154,003	22,718	46,667	7,173 7,938
STD. DEV.				0.07	0.07			21	0.19	0.20	0.33	76,450	76,266	10,732	27,122	3,826 4,243

TABLE 1 (Continued)

THE HISTORICAL RECORD OF LULU'S

TABLE 2

Column	Comments
Sample ID	Sample SAS number.
Date	For night samples, sample <u>began</u> on indicated date.
Location	A1 is upslope from Atlas, A2 is downslope, etc.
Clovis Pressure	Atmospheric pressure as reported by NWS in Clovis (near Fresno), adjusted to sea level, expressed in inches of mercury.
Site Pressure	Assumed pressure at sampling location using $P_s = P_o - Z_s / 1000$ where: P_s = site pressure P_o = sea level pressure (Clovis pressure) Z_s = site elevation in feet.
Elev	Site elevation in feet above mean sea level.
Assumed Site Temp	Pending reduction of measured site data, assumed temperatures were 305K for day samples and 295K for night temperatures (90°F/70°F).
Elapsed Time	Time measured in tenths of an hour by the sampler, converted to minutes.
Indicated Ave. Flow	Average of beginning and ending flow rates, as indicated by the sampler rotameter in liters per minute.
Corr. Flow	Indicated flow corrected for rotameter response to air density as follows: $F_c = F_i \left(\frac{P_{std} T_s}{T_{std} P_s} \right)^{1/2}$ where: F_i = indicated flow F_c = corrected flow rate (in actual liters/min) P_{std} = standard pressure (29.92 "Hg) T_s = site temperature T_{std} = standard temperature (298°K) P_s = site pressure.
Sample Volume	Sample volume in actual cubic meters.
Total Structures	Total particulate structures per filter as reported by lab.
Asbestos Structures	Total asbestos structures (fibers, bundles, clusters, etc.) per filter as reported by lab.
Asbestos Structures per ACM	Asbestos structures per actual cubic meter. Asbestos structures/sample volume.
Asbestos Fibers	Number of asbestos fibers per filter as reported by lab.
Asbestos Fibers per ACM	Number of asbestos fibers per <u>actual</u> cubic meter, asbestos fibers/sample volume.
Asbestos Fibers per SCM	Number of asbestos fibers per <u>standard</u> cubic meter. This is the number of fibers per cubic meter that would be found if the sample were compressed to standard temperature and pressure.